

METHOD OF PACKING COATING MATERIAL FOR BUILDING USE

BY

KIM, CHOONG-YUP

BACKGROUND OF THE INVENTION

Field of the Invention

[01] The present invention relates to a method of packing a coating material for building use. More particularly, the present invention relates to a method of packing a liquid coating material for building use, in which the liquid coating material is hermetically packed in one or more flexible inner packs, and the inner packs are put in one solid outer container, so that after the packed content was used, only the inner packs can be disposed of as wastes while the outer container can be collected and recycled, whereby generation of wastes can be minimized and an effect of resources saving can be obtained.

Background of the Related Art

[02] Generally, in constructing buildings, there are used various coating materials, which are liquid materials, such as paints. These coating materials are applied on the surface of structures or various building members and cured for a given time. Such coating materials for building use are used in various processes during building construction. These coating materials have been generally used for building exterior finishing,

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material protection, moisture proof, pest proof and the like, and their application fields are gradually increased.

[03] Particularly, a waterproof coating method, which is based on the use of a waterproof coating material, is currently often applied in waterproof work, and thus becomes one of main application fields of the building coating materials as described above. This waterproof coating method is a construction method in which a liquid type material for waterproof use is repeatedly applied on the surface of structures to form a waterproof layer. This waterproof coating method is advantageous in that a continuous waterproof layer can be formed by simple work without a connection. Thus, this becomes one of recent waterproof methods, which are widely used.

[04] Waterproof materials used in such waterproof coating methods can be divided into polyurethane-, acrylic rubber-, epoxy-, rubber asphalt-based waterproof materials and the like, according to their components. Particularly, polyurethane waterproof materials based on isocyanate and polyol are most often used. Moreover, such waterproof coating materials can be broadly divided into one-component type waterproof materials and two-component type waterproof materials, according to their use method. The one-component type waterproof materials consist of one liquid component, which is cured by reaction with moisture in air or moisture on structure surfaces. The two-component type

waterproof materials consist of a base material and a curing agent, which are mixed just before use.

[05] Meanwhile, since the coating materials as described above, when exposed to air, start to cure or are modified, they need to be suitably packed such that they are not in contact with the open air before they are used in construction work. In packing and distributing such coating materials, the coating materials are put into one steel can (generally hexahedral shape), hermetically packed and distributed. In order to use the packed coating materials in a field of construction work, a cap disposed at a top of the can is opened, or an upper side of the can is removed if the can has no cap or inlet.

[06] In the prior packing method as described above, there can be achieved a basic packing object in that airtightness of the can content is maintained before the content is used. However, in such a prior packing method, the steel can is used as a packing container. Once it is used, this steel can is disposed of as wastes without being collected and recycled as a packing container, thereby increasing wastes and causing the squandering of resources. Particularly, in the case of the coating material can whose content was used, since the remaining content is coagulated on the inner surface of the container such that it is hardly separated. Thus, it is not substantially possible to recycle the container whose content was used.

[07] Furthermore, the can that is packed according to the prior packing method is kept in a field of construction work before it is taken out. In order to keep such a packed can, large loading spaces are required. Also, in the case of the coating material-packing can whose content was used, a content, such as a waterproof liquid flowed out from the can during use, is left to stand in a state where it is exposed to the exterior of the can. This makes an ill appearance, and if it sticks to the skin of workers, it is difficult to wash out and also may have an injurious effect on the skin.

[08] Meanwhile, if the coating material to be packed is the two-component type waterproof solution as described above, the basic material and the curing agent are put and packed in different steel cans and distributed, according to the prior art. They are taken in a field of construction field at a required amount, and mixed with each other according to a predetermined mixing ratio (generally one can of basic material per one can of curing agent).

[09] In such a prior method, the base material and the curing agent are packed in different containers. Thus, in order to use these materials, the base material cans and the curing agent cans of the same number as the base material cans are opened, and the contents of the opened cans are put in one larger container and mixed using a motor agitator. In this procedure,

there can frequently occur the case where the base material cans and the curing agent cans are not used at the same number. Namely, there can be the case where the base material and the curing agent are not used at a correct mixing ratio, thereby causing a decrease in waterproof quality.

[10] The prior methods of packing the coating material for building use have various problems as described above, but these problems are not still improved. Accordingly, the present inventors have developed an improved method of packing the coating material for building use, which solves the above-mentioned problems occurring in the prior art.

SUMMARY OF THE INVENTION

[11] Accordingly, the present invention has been made to solve the above-mentioned problems occurring in the prior art, and an object of the present invention is to provide a method for packing a coating material for building use, in which the coating material is hermetically packed in flexible inner packs separated from an outer container, so that after the content of the packs was used, only the packs can be disposed of as wastes and the outer container can be recycled, whereby the amount of the packing material wastes can be minimized while materials and packing costs required for the inner packs can be minimized, thereby making the packing of the coating material economical and reasonable.

[12] Another object of the present invention is to provide a method of packing a coating material for building use, in which an outer container is manufactured in the form of a box-shaped foldable container, so that large loading spaces are not required to keep the packing container whose content was used.

[13] In addition, another object of the present invention is to provide a method for packing a coating material for building use, in which components of a two-component waterproof coating material are hermetically packed in different flexible packs which are then put and packed in one container, so that the two-component waterproof coating material can be easily handled and used according to a correct mixing ratio.

[14] To achieve these objects, the present invention provides a method for packing a coating material for building use, which comprises hermetically packing the coating material in one or more flexible inner packs, and putting and packing the resulting inner packs in one solid outer container together.

[15] The outer container is preferably a box-shaped packing container manufactured by assembling of synthetic resin boards. In this box-shaped packing container, it is preferred that the edge portions of the container are foldably processed or rotatably connected with each other by a hinge so that the packing container can be kept in a folded state after its content was drawn out.

[16] As described above, in the method of the present invention, the coating material for building use is hermetically packed in the flexible inner packs, so that the packs containing the content and the outer container are separately packed. Thus, the outer packing container is not in contact with the content, so that after the content was used, the outer container can be collected and recycled as a packing container. As described above, the present invention utilizes a double packing manner in which the inner package and the outer package are separately used. In this construction, as the inner package, the flexible pack is used which is relatively inexpensive and lightweight and also disposed of as wastes after the content was used. As the outer package, the solid container is used which was solidly made such that it is easily transported, loaded and kept. This container can be collected and recycled after its content was drawn out. Thus, according to the present invention, the outer container can be recycled and costs required for the inner container to be wasted are minimized. For these reason, the present invention provides a package system, which is reasonable and economical as compared to the prior packing method.

[17] Moreover, if the packing method according to the present invention is applied to pack the two-component waterproof solution, plural packs, which were hermetically packed, are put in one outer container. For use, the outer container is opened

and contents of the inner packs contained in the outer container can be mixed with each other. Thus, the components of the waterproof solution can be mixed and used according to a correct mixing ratio without confusion.

[18] Meanwhile, the outer container may be a box-shaped container made by assembling of synthetic resin boards, so that a packed coating material product can be reduced in its weight while it can be easily handled and kept. Also, in the box-shaped outer container, it is preferred that its edge portions are foldably processed or rotatably connected with each other by a hinge. For this reason, since the outer container in the present invention can be kept in a folded state after the content was drawn out, large loading spaces are not required to keep a packing container whose content was used. Namely, after the coating material was used, the flexible inner packs can be collected in the same place, put in a bag and disposed of as wastes. The outer containers can be stacked and kept in the same place in a folded state, so that they require small loading spaces and also have an advantageous effect from a viewpoint of beautiful sight.

[19] Furthermore, the packing method according to the present invention is advantageous in that it is easily applied in mass packing and transport unlike the prior packing method. Namely, the coating material for building use, which is packed

according to the present invention, are consumed at large amounts in a field of construction work. In the prior packing method, in order to ensure this consumption amount, a plurality of packed coating material products in which the coating material is packed at small amounts, must be taken in a field of construction field. Thus, in this case, it is uneconomical in that the coating material is packed at small amounts, thereby increasing packing costs. However, in the packing method of the present invention, the outer container is made to have a larger volume than a generally distributed volume, and numerous packs are loaded in the outer container so that mass packing and transport are very easy.

BRIEF DESCRIPTION OF THE DRAWINGS

[20] The above and other objects, features and advantages of the present invention will be apparent from the following detailed description of the preferred embodiments of the invention in conjunction with the accompanying drawings, in which:

[21] FIG.1 is a perspective view showing a state where a coating material for building use is packed according to the present invention; and

[22] FIG.2 is a view showing an embodiment of an outer container used in the present invention, and a procedure where the container is folded.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[23] Reference will now be made in detail to the preferred embodiments of the present invention, examples of which are illustrated in the accompanying drawings.

[24] FIG. 1 is a perspective view showing a state where a coating material for building use is packed according to the present invention. In FIG. 1, the material to be packed is a two-component type waterproof solution. Referring to FIG. 1, the method of packing the coating material for building use according to the present invention comprises hermetically packing the waterproof solutions of a different component in the flexible inner packs 10, respectively; putting and packing the resulting inner packs 10 in one outer container 20 together.

[25] The flexible inner packs 10 may be made of various materials such as vinyl, polyethylene resin and the like. In this embodiment, the inner packs 10 are made of an aluminum sheet having a polyethylene film adhered to the back surface thereof to increase strength.

[26] Such an aluminum inner pack does not substantially permit the passage of moisture therethrough as compared to other synthetic resin film such as vinyl or polyethylene, and thus is very suitable to use as a material of the packs in the present invention. Namely, the waterproof coating material is prepared based on a polymer material such as polyurethane or epoxy. Where

such a coating material is contacted and bonded with water before mixing of the components, polymerization is not fully taken place during mixing, so that elasticity and waterproof performance of the waterproof material are decreased. For this reason, the coating material must be packed in a material that does not permit the passage of water therethrough. Although a material such as vinyl or polyethylene is a non-permeable material, a very small amount of water tends to penetrate through this material with the passage of time. For this reason, the aluminum material is preferably used for the inner packs.

[27] However, the aluminum material as described above can be broken due to weak strength as compared to the synthetic resin. Thus, in this embodiment, there is used an aluminum sheet having a polyethylene film adhered to the back surface thereof to increase strength. The thickness of the aluminum sheet is suitably selected depending on the weight of the coating material to be packed. If the weight of the content is less than 15 kg, a sheet of a 300 μm thickness is preferably used.

[28] Meanwhile, as shown in FIG. 1, it is preferred that a handle portion 10a is additionally formed at the upper portion of the inner packs such that the inner packs can be easily drawn out from the outer container. Also, incision grooves 10b may be formed at the upper portion of the inner packs such that the inner packs can be easily opened.

[29] As the waterproof material is hermetically packed in the inner packs 10 as described above, the inner packs 10 are put and packed in one outer container 20 together. The outer container is made in such a manner that it is collected and recycled after the content was used, unlike the inner packs that are disposed of as wastes after the content was used. This outer container receives the inner packs containing the coating material and safely transports and loads the inner packs. For this purpose, the outer container must be made of a solid material such that it is not easily deformed.

[30] As shown in FIG. 2, the outer container 20 is preferably a box-shaped container, which is assembled by assembling of synthetic resin sheets. However, the outer container may also be made of other materials, such as an steel container or a container made of paper treated to have suitable strength, as long as they meet requirements of the outer container. Moreover, the outer container may also have other shapes such as a cylindrical shape. However, since the synthetic resin sheet has an excellent strength for its weight, the use of the synthetic resin sheet provides a reduction in the total weight of the packed product. Also, if the box-shaped container is adopted, it is easily transported, loaded and handled as described above.

[31] In this embodiment, although the outer container 20 is made of a synthetic resin sheet of a polypropylene material, other synthetic resin materials such as polyvinyl chloride (PVC) and polystyrene (PS) may also be used which can exhibit similar performance to the polypropylene material.

[32] In this embodiment, in forming the outer container 20 into a box shape, the edge portions of the container 20 is foldably processed, so that after the content was used, the outer container 20 can be kept in a folded state. The structure and folding procedure of the outer container 20 are shown in FIG. 2.

[33] The synthetic resin box container, which can be folded as described above, is currently developed and used in various configurations. FIG. 2 shows a procedure where a folding type box used in this embodiment is folded. As shown in FIG. 2, the outer container in the present invention is folded at its boards after the packed coating material was drawn out, so that the outer container can be kept while minimizing its volume. As a result, by using such a folding type box, the present invention is advantageous in that large loading spaces are not required to keep the packing container whose content was drawn out. Another advantage is that the folding type box whose content was drawn out is easily taken out and collected.

[34] As apparent from the foregoing, according to the present invention, the method of packing the coating material for

building use is provided, in which the coating material is hermetically packed in the flexible inner pack separated from the outer container, so that after the coating material was used, only the pack can be disposed of as wastes and the outer container can be recycled. Thus, the amount of wastes can be minimized while the materials and packing costs required for the inner pack can be reduced, thereby making the packing of the coating material economical and reasonable.

[35] Moreover, according to the present invention, the method of packing the coating material for building use, in which the outer container is manufactured and used in the form of the box-shaped folding container, so that large loading spaces are not required to keep the packing container whose content was used. Also, the method of packing the coating material for building use, in which the two-component type waterproof coating materials of a different component are packed in different flexible packs, which are then put and packed in one container, so that the coating material is easily handled and also used according to a correct mixing ratio.

[36] The forgoing embodiments are merely exemplary and are not to be construed as limiting the present invention. The present teachings can be readily applied to other types of apparatuses. The description of the present invention is intended to be illustrative, and not to limit the scope of the claims.

Many alternatives, modifications, and variations will be apparent to those skilled in the art.